```
=> fil medlin embas biosis drugu uspatall
FILE 'MEDLINE' ENTERED AT 16:08:03 ON 25 JUN 2004

FILE 'EMBASE' ENTERED AT 16:08:03 ON 25 JUN 2004
COPYRIGHT (C) 2004 Elsevier Inc. All rights reserved.

FILE 'BIOSIS' ENTERED AT 16:08:03 ON 25 JUN 2004
COPYRIGHT (C) 2004 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'DRUGU' ENTERED AT 16:08:03 ON 25 JUN 2004
COPYRIGHT (C) 2004 THOMSON DERWENT

FILE 'USPATFULL' ENTERED AT 16:08:03 ON 25 JUN 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPAT2' ENTERED AT 16:08:03 ON 25 JUN 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

=> s (l5 or l13) and bipol?
L22           9 (L5 OR L13) AND BIPOL?

=> dup rem l22
PROCESSING COMPLETED FOR L22
L23           7 DUP REM L22 (2 DUPLICATES REMOVED)
                ANSWER '1' FROM FILE MEDLINE
                ANSWERS '2-7' FROM FILE USPATFULL

=> d l23 bib ab 1-7

L23  ANSWER 1 OF 7     MEDLINE on STN                    DUPLICATE 1
AN   2004043865     MEDLINE
DN   PubMed ID: 14744468
TI   Ethanolamine and phosphoethanolamine inhibit mitochondrial function in
     vitro: implications for mitochondrial dysfunction hypothesis in depression
     and bipolar disorder.
AU   Modica-Napolitano Josephine S; Renshaw Perry F
CS   Department of Biology, Merrimack College, 315 Turnpike Street, North
     Andover, MA 01845, USA.
NC   MH 8681 (NIMH)
SO   Biological psychiatry, (2004 Feb 1) 55 (3) 273-7.
     Journal code: 0213264. ISSN: 0006-3223.
CY   United States
DT   Journal; Article; (JOURNAL ARTICLE)
LA   English
FS   Priority Journals
EM   200404
ED   Entered STN: 20040128
     Last Updated on STN: 20040402
     Entered Medline: 20040401
AB   BACKGROUND: A growing body of experimental evidence suggests that
     mitochondrial dysfunction, including alterations in phospholipid
     metabolism, might be involved in the pathophysiology of affective
     illnesses, such as depression and bipolar disorder. The purpose
     of this study was to determine whether the phosphomonoester
     phosphoethanolamine (PE) and the lipid metabolite choline (Cho), which are
     known to be altered in depression and bipolar disorder, and/or
```

their precursors/metabolites, might directly affect mitochondrial bioenergetic function in vitro. METHODS: To this end, rates of oxygen consumption in freshly isolated, intact mitochondria were determined polarographically in the presence and absence of PE, Cho, ethanolamine (Etn), glycerophosphoethanolamine (GPE), and glycerophosphocholine (GPC). RESULTS: The data demonstrate that PE and Etn inhibit mitochondrial respiratory activity in a dose-dependent manner, whereas Cho, GPC, and GPE have no measurable effect on bioenergetic function. CONCLUSIONS: This reflects a specific inhibition by Etn and PE on mitochondrial function rather than a more generalized phenomenon induced by similarities in structure between the lipid metabolites. These results also suggest a possible relationship between mitochondrial dysfunction and altered phospholipid metabolism in the brains of patients with depression and **bipolar** disorder.

L23 ANSWER 2 OF 7 USPATFULL on STN
AN 2004:44994 USPATFULL
TI Phospholipid derivatives of valproic acid and mixtures thereof
IN Kozak, Alexander, Rehovot, ISRAEL
PI US 2004033987 A1 20040219
AI US 2003-312895 A1 20030711 (10)
WO 2001-IL629 20010710
DT Utility
FS APPLICATION
LREP DAVIDSON, DAVIDSON & KAPPEL, LLC, 485 SEVENTH AVENUE, 14TH FLOOR, NEW YORK, NY, 10018
CLMN Number of Claims: 34
ECL Exemplary Claim: 1
DRWN 2 Drawing Page(s)
LN.CNT 807
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to compounds, which are phospholipid derivatives of valproic acid, to compositions comprising said compounds and their use for treating epilepsy, migraine, **bipolar** disorders and pain.

L23 ANSWER 3 OF 7 USPATFULL on STN
AN 2003:258300 USPATFULL
TI Composition & use as analgesic, anti-inflammatory, wound healing agent, for treatment of heart conditions, assessment of heart function & tissue & cell protection & healing & reperfusion, mood disorders & symptoms & sequelae of menopause & for inducing unconsciousness, sleep & anesthesia
IN Nyce, Jonathan W., Titusville, NJ, UNITED STATES
PI US 2003181353 A1 20030925
AI US 2003-349219 A1 20030121 (10)
RLI Division of Ser. No. US 2001-762090, filed on 1 Feb 2001, ABANDONED A 371 of International Ser. No. WO 1999-US17642, filed on 3 Aug 1999, PENDING
PRAI US 1998-95090P 19980803 (60)
DT Utility
FS APPLICATION
LREP HOWREY SIMON ARNOLD & WHITE, LLP, BOX 34, 301 RAVENSWOOD AVE., MENLO PARK, CA, 94025
CLMN Number of Claims: 108
ECL Exemplary Claim: 95
DRWN No Drawings
LN.CNT 1818

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Composition and formulations comprise a brain, heart, lung and/or vascular system protecting amount of a first agent such as folinic acid, pharmaceutically acceptable salts thereof or mixtures thereof and a carrier, and optionally a second agent such as analgesics, heart medicines, anti-inflammatory agents, soporifics, muscle relaxants, anti-pyretic agents, anti-fibrillation agents, heart, brain, lung and vascular drugs, anxiolytic agents, mood controlling agents, and many others. The products are suitable for the treatment of previous mood disorders, symptoms and sequelae of menopause, pain, inflammation, insomnia, restless sleep, trauma, surgery, burns, conditions and diseases which bring these symptoms, ischemia, Supra Ventricular Tachycardia (SVT), heart conditions and heart failure, Acute Respiratory Distress Syndrome (ARDS), COPD, allergic rhinitis, and other conditions, and for reducing the number and severity of heart attacks, as well as for alleviating other diseases associated with the heart, and more generally, for the assessment of heart function. An edible product is prepared with the agent of the invention.

L23 ANSWER 4 OF 7 USPATFULL on STN
AN 2003:17078 USPATFULL
TI Omega-3 fatty acids in the treatment of depression
IN Stoll, Andrew, Lincoln, MA, UNITED STATES
PI US 2003012827 A1 20030116
AI US 2002-83913 A1 20020227 (10)
RLI Continuation-in-part of Ser. No. US 1999-269361, filed on 22 Mar 1999, GRANTED, Pat. No. US 6344482 A 371 of International Ser. No. WO 1997-US6712, filed on 23 Apr 1997, PENDING
DT Utility
FS APPLICATION
LREP Choate, Hall & Stewart, Exchange Place, 53 State Street, Boston, MA, 02109
CLMN Number of Claims: 27
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 617
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is directed to a method of treating patients with major depression by administering omega-3 fatty acids. These may be administered in a substantially purified form, as part of a pharmaceutical composition, or as part of a larger molecule, e.g., a triacylglycerol, which releases free fatty acid after ingestion by a patient.

The present invention is also directed to triacylglycerols which are esterified at the gamma cardon of glycerol to phosphocholine and at either the alpha or beta carbon of glycerol to an omega-3 fatty acid. These "omega-3 phoshatidylcholines" are also used in the treatment of patients with major depression.

L23 ANSWER 5 OF 7 USPATFULL on STN
AN 2002:172346 USPATFULL
TI Omega-3 fatty acids and omega-3 phosphatidylcholine in the treatment of **bipolar** disorder
IN Stoll, Andrew L., Lincoln, MA, UNITED STATES
Severus, Wolfram E., Berlin, GERMANY, FEDERAL REPUBLIC OF
PI US 2002091103 A1 20020711

AI US 2002-68035 A1 20020205 (10)
RLI Continuation of Ser. No. US 1999-269361, filed on 22 Mar 1999, PATENTED
PRAI WO 1997-US6712 19970423
DT Utility
FS APPLICATION
LREP Choate, Hall & Stewart, Exchange Place, 53 State Street, Boston, MA, 02109
CLMN Number of Claims: 25
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 439
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is directed to a method of treating patients with **bipolar** disorder by administering omega-3 fatty acids. These may be administered in a substantially purified form, as part of a pharmaceutical composition, or as part of a larger molecule, e.g. a triacylglycerol, which releases free fatty acid after ingestion by a patient.

The present invention is also directed to triacylglycerols which are esterified at the gamma carbon of glycerol to phosphocholine and at either the alpha or beta carbon of glycerol to an omega-3 fatty acid. These "omega-3 phoshatidylcholines" are also used in the treatment of patients with **bipolar** disorder.

L23 ANSWER 6 OF 7 USPATFULL on STN
AN 2002:48595 USPATFULL
TI METHODS FOR INCREASING CYTIDINE LEVELS IN VIVO ANDTREATING CYTIDINE-DEPENDENT HUMAN DISEASES
IN WATKINS, CAROL, CAMBRIDGE, MA, UNITED STATES
WURTMAN, RICHARD J., BOSTON, MA, UNITED STATES
PI US 2002028787 A1 20020307
AI US 1999-363748 A1 19990730 (9)
PRAI US 1998-95002P 19980731 (60)
DT Utility
FS APPLICATION
LREP PATENT ADMINSTRATOR, KATTEN MUCHIN ZAVIS, SUITE 1600, 525 WEST MONROE STREET, CHICAGO, IL, 60661
CLMN Number of Claims: 38
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 612
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Methods of treating certain neurological diseases using exogenous uridine or a uridine source alone as a precursor of endogenous cytidine, particularly in the human brain, are disclosed. Methods are also disclosed wherein exogenous uridine or a uridine source is combined either with drugs increasing uridine availability or with compounds that serve as a source of choline in phospholipid synthesis.

L23 ANSWER 7 OF 7 USPATFULL on STN
AN 2002:24309 USPATFULL
TI Omega-3 fatty acids in the treatment of **bipolar** disorder
IN Stoll, Andrew L., 35 Old Winter St., Lincoln, MA, United States 01773
Severus, Wolfram E., Badensche Strasse 7, D-10825 Berlin, GERMANY, FEDERAL REPUBLIC OF
PI US 6344482 B1 20020205

WO 9739759 19971030
AI US 1999-269361 19990322 (9)
WO 1997-US6712 19970423
19990322 PCT 371 date
DT Utility
FS GRANTED
EXNAM Primary Examiner: Jarvis, William R. A.
LREP Choate, Hall & Stewart
CLMN Number of Claims: 9
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 387
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention is directed to a method of treating patients with **bipolar** disorder by administering omega-3 fatty acids.

Lithium to treat Bipolar disorder


```
=> d que
L15        2068 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "MENTAL DISORDER (L) BIPOLAR
                DISORDER"+OLD/CT
L24           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  LITHIUM/CN
L25       74563 SEA FILE=HCAPLUS ABB=ON  PLU=ON  LITHIUM/CT
L26       74563 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 OR L25
L27        1863 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L26(L)(BAC OR DMA OR PAC OR
                PKT OR THU)/RL
L28         297 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L27 AND L15
L29          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND P/DT
L30         276 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 NOT L29
L31          77 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L30 AND PY<1999
L32          20 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L31 AND REVIEW/DT
L33           7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L32 AND (LI OR LITHIUM)/TI
                AND BIPOL?/TI


=> d l33 ibib abs hitind hitstr 1-7

L33  ANSWER 1 OF 7  HCAPLUS  COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:         1998:740935  HCAPLUS
DOCUMENT NUMBER:          130:148033
TITLE:                    Glycogen synthase kinase-3 - a new target for
                          lithium's effects in bipolar
                          patients?
AUTHOR(S):                Agam, Galila; Levine, Joseph
CORPORATE SOURCE:         Faculty of Health Science, Ben-Gurion University,
                          Beersheva, Israel
SOURCE:                   Human Psychopharmacology (1998), 13(7),
                          463-465
                          CODEN: HUPSEC; ISSN: 0885-6222
PUBLISHER:                John Wiley & Sons Ltd.
DOCUMENT TYPE:            Journal; General Review
LANGUAGE:                 English
AB   A review with 15 refs. on the possibility that lithium's therapeutic
     effect is mediated via inhibition of glycogen synthase kinase-3 in
     treatment of bipolar disorders.
CC   1-0 (Pharmacology)
IT   Mental disorder
        (manic bipolar disorder; glycogen
        synthase kinase-3 as new target for lithium's effects in bipolar human
        patients)
IT   7439-93-2, Lithium, biological studies
     RL: BAC (Biological activity or effector, except adverse); BSU
     (Biological study, unclassified); THU (Therapeutic use); BIOL
     (Biological study); USES (Uses)
        (glycogen synthase kinase-3 as new target for lithium's effects in
        bipolar human patients)
IT   7439-93-2, Lithium, biological studies
     RL: BAC (Biological activity or effector, except adverse); BSU
     (Biological study, unclassified); THU (Therapeutic use); BIOL
     (Biological study); USES (Uses)
        (glycogen synthase kinase-3 as new target for lithium's effects in
        bipolar human patients)
RN   7439-93-2  HCAPLUS
CN   Lithium (7CI, 8CI, 9CI)  (CA INDEX NAME)
```

Li

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:454808 HCAPLUS
DOCUMENT NUMBER: 129:197460
TITLE: Behavioral reversal of **lithium** effects by four inositol isomers correlates perfectly with biochemical effects on the PI cycle: depletion by chronic **lithium** of brain inositol is specific to hypothalamus, and inositol levels may be abnormal in postmortem brain from **bipolar** patients
AUTHOR(S): Belmaker, Robert H.; Agam, Galila; Van Calker, Dietrich; Richards, Mary H.; Kofman, Ora
CORPORATE SOURCE: Ministry of Health Mental Health Center, Faculty of Health Sciences Ben Gurion University of the Negev, Beersheva, Israel
SOURCE: Neuropsychopharmacology (**1998**), 19(3), 220-232
CODEN: NEROEW; ISSN: 0893-133X
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review with 62 refs. The inositol depletion hypothesis of lithium (Li) action has been criticized, because depletion of inositol after chronic Li treatment has not been reproducible, effects of inositol to reverse Li-induced behaviors occurred also with epi-inositol, a unnatural isomer, and because inositol is ubiquitous in brain and hard to relate to the pathogenesis of affective disorder. Therefore, we review our studies showing that lithium depletion of brain inositol occurs chronically in the hypothalamus, a region not previously examined; that behavioral effects of four different inositol isomers including epi-inositol correlate perfectly with their biochem. effects; and that inositol in postmortem human brain is reduced by 25% in frontal cortex of bipolars and suicides as compared with controls. Because inositol in postmortem brain is reduced and not increased in bipolar patients, the relationship between inositol, lithium, and affective disorder is complex.

CC 1-0 (Pharmacology)
Section cross-reference(s): 14

IT **Mental disorder**
(**manic bipolar disorder**; lithium behavioral effects reversed by four inositol isomers in relation to biochem. effects on PI cycle in rat brain and inositol levels in postmortem bipolar humans)

IT **7439-93-2**, Lithium, biological studies
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(lithium behavioral effects reversed by four inositol isomers in relation to biochem. effects on PI cycle in rat brain and inositol levels in postmortem bipolar humans)

IT **7439-93-2**, Lithium, biological studies
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(lithium behavioral effects reversed by four inositol isomers in relation to biochem. effects on PI cycle in rat brain and inositol levels in postmortem bipolar humans)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:454802 HCAPLUS
DOCUMENT NUMBER: 129:211123
TITLE: **Lithium**: a molecular transducer of mood-stabilization in the treatment of **bipolar** disorder
AUTHOR(S): Manji, Husseini K.; Lenox, Robert H.
CORPORATE SOURCE: Departments of Psychiatry and Behavioral Neurosciences, and Pharmacology, Molecular Pathophysiology Program, Wayne State University School of Medicine, Detroit, MI, USA
SOURCE: Neuropsychopharmacology (**1998**), 19(3), 161-166
CODEN: NEROEW; ISSN: 0893-133X
PUBLISHER: Elsevier Science Inc.
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English
AB A review with 42 refs. This article reviews data regarding the mechanism of action of lithium in bipolar disorder.
CC 1-0 (Pharmacology)
IT **Mental disorder**
(**manic bipolar disorder**; lithium mol. mechanisms in mood-stabilization in treatment of humans with **bipolar disorder**)
IT **7439-93-2**, Lithium, biological studies
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(lithium mol. mechanisms in mood-stabilization in treatment of humans with bipolar disorder)
IT **7439-93-2**, Lithium, biological studies
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(lithium mol. mechanisms in mood-stabilization in treatment of humans with bipolar disorder)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:305315 HCAPLUS
DOCUMENT NUMBER: 129:49066
TITLE: Recurrence risk in **bipolar** manic-depressive disorders after discontinuing **lithium** maintenance treatment: an overview
AUTHOR(S): Baldessarini, Ross J.; Tondo, Leonardo
CORPORATE SOURCE: Laboratories for Psychiatric Research, McLean Division of Massachusetts General Hospital, Harvard Medical School, Belmont, MA, USA
SOURCE: Clinical Drug Investigation (**1998**), 15(4), 337-351
CODEN: CDINFR; ISSN: 1173-2563
PUBLISHER: Adis International Ltd.
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English
AB A review with 80 refs. Lithium remains unequaled in its research support as a standard maintenance treatment for bipolar manic-depressive disorders. It has important beneficial effects on recurring bipolar depression as well as mania, and in both types I and II bipolar syndromes, with powerful antisuicide effects not demonstrated with alternative mood-stabilizers. Numerous studies indicate that discontinuing lithium maintenance treatment is followed by sharply increased morbidity and possibly mortality, particularly in the 1st 6-12 mo. However, gradual discontinuation markedly reduces, and not merely delays, recurrences of mania or depression after discontinuing lithium, with an even stronger effect in bipolar type II than type I patients. Secondary long-term retreatment with lithium following discontinuation yields only minor average losses of benefits. Increased early recurrence risk may also arise after stopping long-term treatment with other neuropsychotropic drugs. Such reactions probably reflect physiol. adaptations of the brain to pharmacodynamic effects, and their impact may be limited by slow drug discontinuation. The phenomenon of high early post-treatment discontinuation recurrence risk has clin. and scientific implications for the design, management and interpretation of treatment protocols that involve discontinuing long-term treatments in disorders requiring maintenance pharmacotherapy with centrally neuropharmacol. active drugs.
CC 1-0 (Pharmacology)
IT **Mental disorder**
(**manic bipolar disorder**; recurrence risk in bipolar manic-depressive disorders of humans after discontinuing lithium maintenance treatment)
IT **7439-93-2**, Lithium, biological studies
RL: ADV (Adverse effect, including toxicity); **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(recurrence risk in bipolar manic-depressive disorders of humans after discontinuing maintenance treatment with)
IT **7439-93-2**, Lithium, biological studies
RL: ADV (Adverse effect, including toxicity); **BAC (Biological**

activity or effector, except adverse); BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(recurrence risk in bipolar manic-depressive disorders of humans after discontinuing maintenance treatment with)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

REFERENCE COUNT: 80 THERE ARE 80 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:105090 HCAPLUS
DOCUMENT NUMBER: 128:212508
TITLE: Use of **lithium** in **bipolar** disorder
AUTHOR(S): Young, Robert C.
CORPORATE SOURCE: Department of Psychiatry, Westchester Division, The New York Hospital-Cornell Medical Center, White Plains, NY, USA
SOURCE: Medical Psychiatry (**1998**), 9(Geriatric Psychopharmacology), 259-272
CODEN: MEPSEN
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English
AB A review with 52 refs. Somatic treatments that are effective for bipolar depression in younger patients can also be effective in the elderly. This chapter focuses on treatment of geriatric manic and depressed bipolar patients with lithium salts directed at acute suppression of symptoms, continuation treatment to prevent immediate relapse, and long term maintenance.
CC 1-0 (Pharmacology)
IT **Mental disorder**
(depression; lithium treatment of **bipolar disorder** in geriatric humans)
IT **Mental disorder**
(mania; lithium treatment of **bipolar disorder** in geriatric humans)
IT **Mental disorder**
(**manic bipolar disorder**; lithium treatment of **bipolar disorder** in geriatric humans)
IT **7439-93-2**, Lithium, biological studies
RL: ADV (Adverse effect, including toxicity); **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(lithium treatment of bipolar disorder in geriatric humans)
IT **7439-93-2**, Lithium, biological studies
RL: ADV (Adverse effect, including toxicity); **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(lithium treatment of bipolar disorder in geriatric humans)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:88534 HCAPLUS
DOCUMENT NUMBER: 128:212458
TITLE: **Lithium** plus valproate as maintenance polypharmacy for patients with **bipolar** I disorder: a review
AUTHOR(S): Solomon, David A.; Keitner, Gabor I.; Ryan, Christine E.; Miller, Ivan W.
CORPORATE SOURCE: Department of Psychiatry and Human Behavior, Rhode Island Hospital, Providence, RI, 02903, USA
SOURCE: Journal of Clinical Psychopharmacology (**1998**), 18(1), 38-49
CODEN: JCPYDR; ISSN: 0271-0749
PUBLISHER: Williams & Wilkins
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English
AB A review with 99 refs. Standard pharmacotherapy for the maintenance treatment of patients with bipolar I disorder consists of lithium, valproate, or carbamazepine. However, many patients fail to respond to monotherapy with any of these agents, and as a result, psychiatrists often resort to polypharmacy. Findings from some open-label trials and retrospective chart reviews suggest this approach may be useful, but in the few controlled trials that have been conducted, the results have been neg. One drug combination that warrants further study as maintenance therapy is lithium plus valproate. Each is approved by the U.S. Food and Drug Administration for treatment of acute mania, and lithium has demonstrated efficacy for maintenance treatment as well. Some preliminary evidence suggests that the combination can be effective for patients who do not respond to monotherapy, and it seems to be no more dangerous than monotherapy. Concomitant administration of lithium plus. valproate does not significantly alter lithium pharmacokinetics, and statistically significant changes that arise in valproate pharmacokinetics are not clin. significant. Although it is not known whether the drugs interact to augment response, many of their effects in the central nervous system do differ, and there is no indication of pharmacodynamic interactions that oppose each other. Finally, some evidence suggests that lithium and valproate may differ with regard to clin. variables that predict response to treatment.
CC 1-0 (Pharmacology)
IT **Mental disorder**
(manic bipolar disorder;
Lithium/valproate maintenance polypharmacy for humans with bipolar I disorder)
IT 99-66-1 **7439-93-2**, Lithium, biological studies
RL: ADV (Adverse effect, including toxicity); **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study);

USES (Uses)
(Lithium/valproate maintenance polypharmacy for humans with bipolar I disorder)

IT **7439-93-2**, Lithium, biological studies
RL: ADV (Adverse effect, including toxicity); **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(Lithium/valproate maintenance polypharmacy for humans with bipolar I disorder)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

REFERENCE COUNT: 99 THERE ARE 99 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L33 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:713254 HCAPLUS
DOCUMENT NUMBER: 123:131800
TITLE: Inositol monophosphatase -- a putative target for **Li+** in the treatment of **bipolar** disorder
AUTHOR(S): Atack, John R.; Broughton, Howard B.; Pollack, Scott J.
CORPORATE SOURCE: Merck Sharp Dohme Res. Lab., Neurosci. Res. Cent., Harlow, Essex, CM20 2QR, UK
SOURCE: Trends in Neurosciences (**1995**), 18(8), 343-9
CODEN: TNSCDR; ISSN: 0166-2236
PUBLISHER: Elsevier Trends Journals
DOCUMENT TYPE: Journal; **General Review**
LANGUAGE: English

AB A review, with 97 refs., discussing the hypothesis that attenuation of the phosphatidylinositol signal transduction pathway as a consequence of inhibition of inositol monophosphatase is the mechanism for the efficacy of Li+ in the treatment of bipolar disorder.

CC 1-0 (Pharmacology)

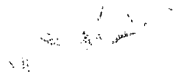
IT **Mental disorder**
(**manic bipolar disorder**, inositol monophosphatase as target for lithium in treatment of bipolar disease)

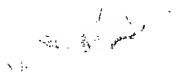
IT **7439-93-2**, Lithium, biological studies
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(inositol monophosphatase as target for lithium in treatment of bipolar disease)

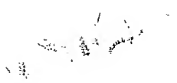
IT **7439-93-2**, Lithium, biological studies
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(inositol monophosphatase as target for lithium in treatment of bipolar disease)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li



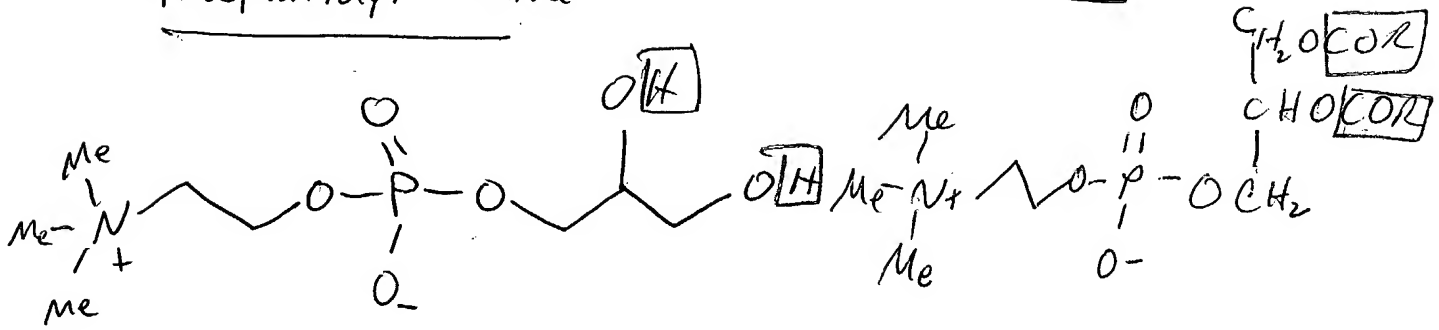




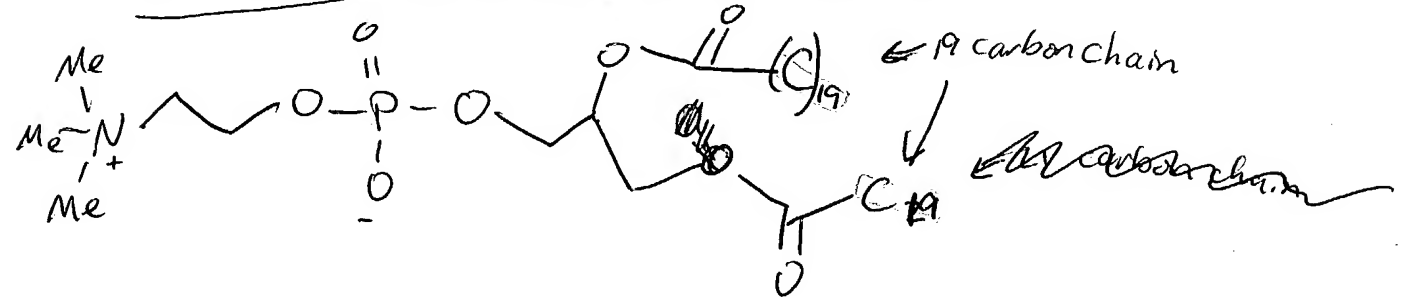
Choline
$(CH_3)_3\overset{+}{N}-CH_2CH_2O^-$

Basic Structure of Phosphatidyl Choline:

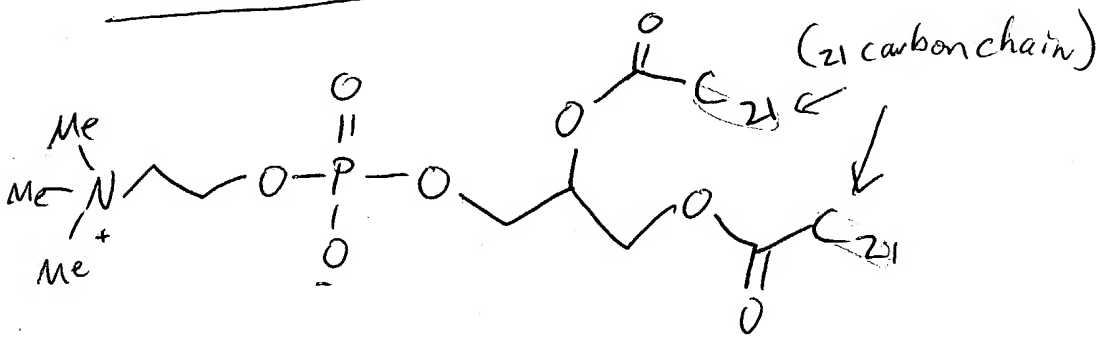
Lecithin



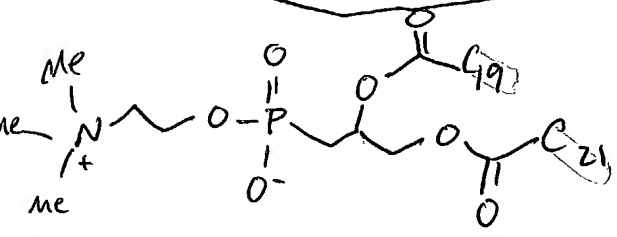
Dieicosapentanoyl phosphatidyl choline:



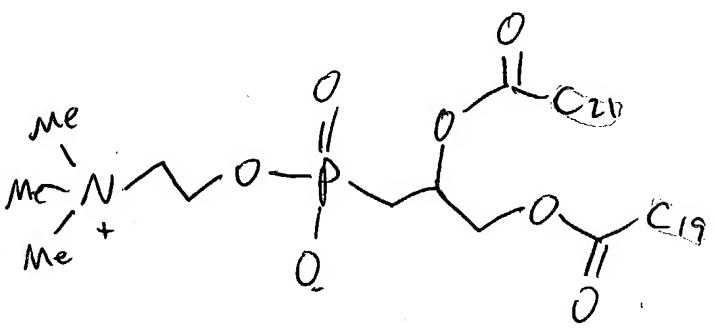
Didocosahexanoyl "



1-eicosapent...., 2-docosahex....

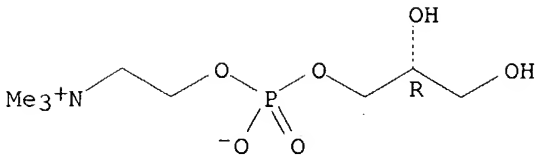


1-docosahex..., 2-eicosapent...



L6 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2004 ACS on STN
RN 28319-77-9 REGISTRY
CN Ethanaminium, 2-[[[(2R)-2,3-dihydroxypropoxy]hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, inner salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Choline, hydroxide, 2,3-dihydroxypropyl hydrogen phosphate, inner salt, D- (8CI)
CN Ethanaminium, 2-[[(2,3-dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, hydroxide, inner salt, (R)-
OTHER NAMES:
CN Brezal
CN Choline alfoscerate
CN Delecit
CN Ethanaminium, 2-[[(2,3-dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, inner salt, (R)-
CN Gliatilin
CN Glycerophosphocholine
CN Glycerophosphorylcholine
CN L-α-Glycerophosphocholine
CN L-α-Glycerophosphorylcholine
CN L-α-Glycerylphosphorylcholine
CN L-α-GPC
CN L-α-Lecithin
CN **L-α-Phosphatidylcholine**
CN O-(sn-glycero-3-Phosphoryl)-choline
CN sn-Glycero-3-phosphocholine
CN sn-Glycero-3-phosphorylcholine
CN sn-glycero-3-Phosphorylcholine
FS STEREOSEARCH
DR 103709-68-8, 117829-79-5
MF **C8 H20 N O6 P**
CI COM
LC STN Files: ADISINSIGHT, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CSCHEM, DDFU, DRUGU, EMBASE, IMSRESEARCH, IPA, MRCK*, PHAR, PROMT, PROUSDDR, RTECS*, TOXCENTER, USAN, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, WHO
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Conference; Journal; Patent
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Absolute stereochemistry.



376 REFERENCES IN FILE CA (1907 TO DATE)
42 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
378 REFERENCES IN FILE CAPLUS (1907 TO DATE)

Inventors

L13 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:717821 HCAPLUS
DOCUMENT NUMBER: 128:7311
ENTRY DATE: Entered STN: 13 Nov 1997
TITLE: Fatty acids and **phosphatidylcholines** in the treatment of bipolar disorder
INVENTOR(S): **Stoll, Andrew L.; Severus, Wolfram E.**
PATENT ASSIGNEE(S): Brigham and Women's Hospital, USA; Stoll, Andrew L.; Severus, Wolfram E.
SOURCE: PCT Int. Appl., 13 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
INT. PATENT CLASSIF.:
MAIN: A61K033-14
SECONDARY: A61K031-66; A61K031-20
CLASSIFICATION: 63-6 (Pharmaceuticals)
Section cross-reference(s): 1
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9739759	A2	19971030	WO 1997-US6712	19970423
WO 9739759	A3	19980115		
W: AU, CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9727384	A1	19971112	AU 1997-27384	19970423
US 6344482	B1	20020205	US 1999-269361	19990322
US 2002091103	A1	20020711	US 2002-68035	20020205
US 2003012827	A1	20030116	US 2002-83913	20020227

PRIORITY APPLN. INFO.: US 1996-16140P P 19960424
WO 1997-US6712 W 19970423
US 1999-269361 A1 19990322

ABSTRACT:
The present invention is directed to a method of treating patients with bipolar disorder by administering ω-3 fatty acids. These may be administered in a substantially purified form, as part of a pharmaceutical composition, or as part of a larger mol., e.g. a triacylglycerol, which releases free fatty acid after ingestion by a patient. The present invention is also directed to triacylglycerols which are esterified at the γ-carbon of glycerol with phosphocholine and at either the α- or β-carbon of glycerol with an ω-3 fatty acid. These ω-3 **phosphatidylcholines** are also used in the treatment of patients with bipolar disorder.

SUPPL. TERM: polyunsatd fatty acid **phosphatidylcholine** bipolar disorder
INDEX TERM: Mental disorder
(manic bipolar disorder; ω-3 fatty acids and **phosphatidylcholines** for treatment of bipolar disorder)
INDEX TERM: Drug delivery systems
(oral; ω-3 fatty acids and **phosphatidylcholines** for treatment of bipolar disorder)

INDEX TERM: Fatty acids, biological studies
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyunsatd., n-3; ω-3 fatty acids and **phosphatidylcholines** for treatment of bipolar disorder)

INDEX TERM: **Phosphatidylcholines**, biological studies
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ω-3 fatty acids and **phosphatidylcholines** for treatment of bipolar disorder)

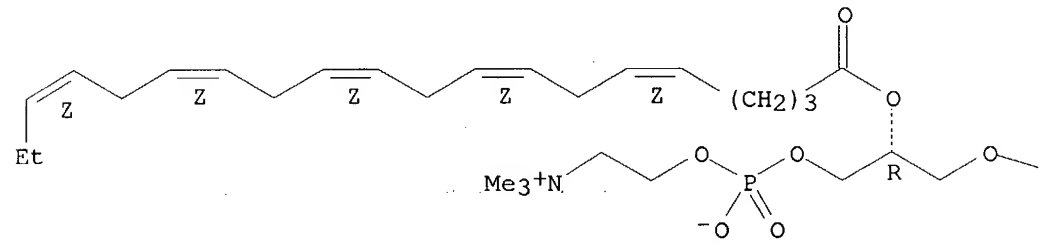
INDEX TERM: 7439-93-2D, Lithium, compds., biological studies
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(as addnl. agent; ω-3 fatty acids and **phosphatidylcholines** for treatment of bipolar disorder)

INDEX TERM: 6217-54-5, Docosahexaenoic acid 10417-94-4, Eicosapentaenoic acid 87879-23-0 87879-27-4 98819-78-4 198779-10-1
ROLE: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ω-3 fatty acids and **phosphatidylcholines** for treatment of bipolar disorder)

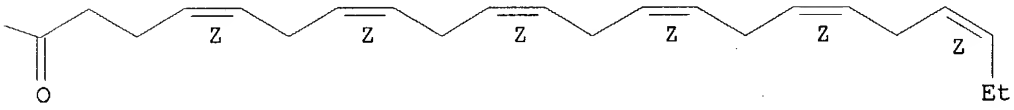
L14 ANSWER 1 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **198779-10-1** REGISTRY
CN 3,5,9-Trioxa-4-phosphahentriaconta-13,16,19,22,25,28-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[(1-oxo-5,8,11,14,17-eicosapentaenyl)oxy]-, inner salt, 4-oxide, [R-(all-Z)]- (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C50 H78 N O8 P
SR CA
LC STN Files: CA, CAPLUS, USPATFULL
DT.CA CAplus document type: Patent
RL.P Roles from patents: BIOL (Biological study); USES (Uses)

Absolute stereochemistry.
Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



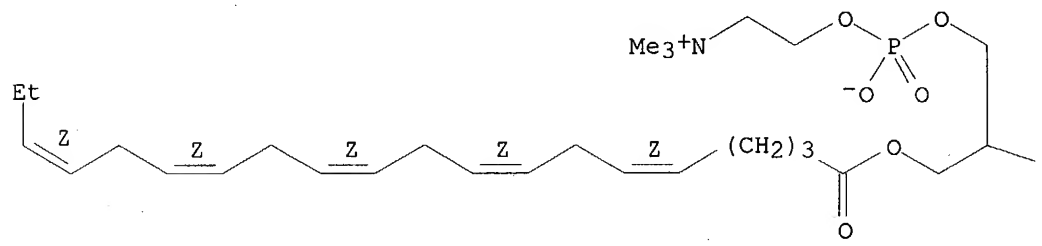
1 REFERENCES IN FILE CA (1907 TO DATE)
1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L14 ANSWER 2 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **98819-78-4** REGISTRY
CN 3,5,9-Trioxa-4-phosphanonacosa-14,17,20,23,26-pentaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[[(5Z,8Z,11Z,14Z,17Z)-1-oxo-5,8,11,14,17-eicosapentaenyl]oxy]-, inner salt, 4-oxide, (14Z,17Z,20Z,23Z,26Z)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 3,5,9-Trioxa-4-phosphanonacosa-14,17,20,23,26-pentaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[(1-oxo-5,8,11,14,17-eicosapentaenyl)oxy]-, inner salt, 4-oxide, (all-Z)-
FS STEREOSEARCH
MF C48 H76 N O8 P

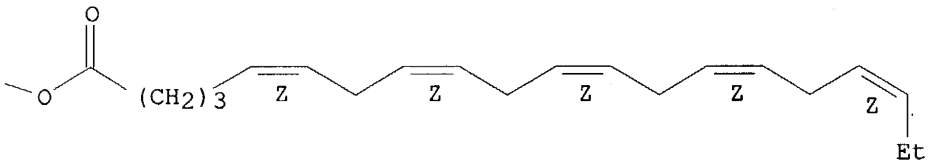
SR CA
LC STN Files: CA, CAPLUS, USPATFULL
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)
RL.NP Roles from non-patents: BIOL (Biological study)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

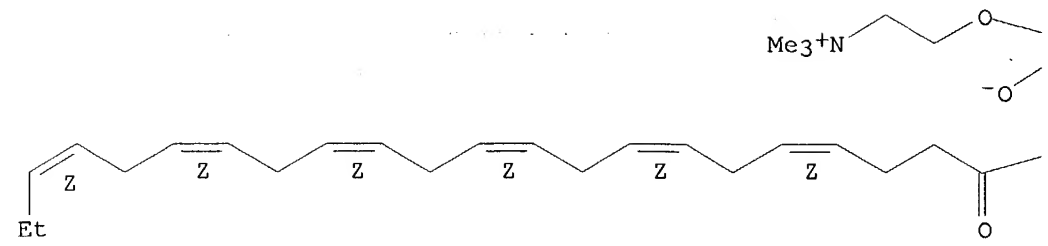


5 REFERENCES IN FILE CA (1907 TO DATE)
5 REFERENCES IN FILE CAPLUS (1907 TO DATE)

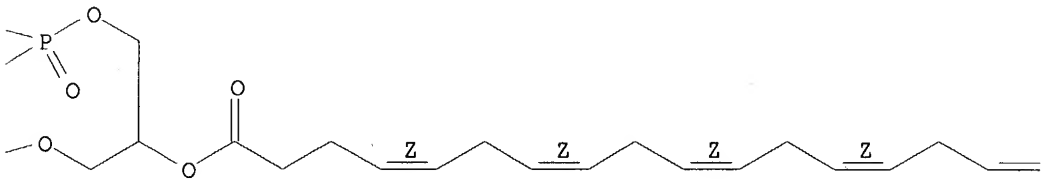
L14 ANSWER 3 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **87879-27-4** REGISTRY
CN 3,5,9-Trioxa-4-phosphahentriaconta-13,16,19,22,25,28-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[[(4Z,7Z,10Z,13Z,16Z,19Z)-1-oxo-4,7,10,13,16,19-docosahexaenyl]oxy]-, inner salt, 4-oxide, (13Z,16Z,19Z,22Z,25Z,28Z)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 3,5,9-Trioxa-4-phosphahentriaconta-13,16,19,22,25,28-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[(1-oxo-4,7,10,13,16,19-docosahexaenyl)oxy]-, inner salt, 4-oxide, (all-Z)-
FS STEREOSEARCH
MF C52 H80 N O8 P
LC STN Files: CA, CAPLUS, TOXCENTER, USPATFULL
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: BIOL (Biological study); OCCU (Occurrence); PROC (Process); PRP (Properties)

Double bond geometry as shown.

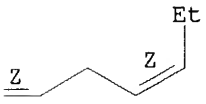
PAGE 1-A



PAGE 1-B



PAGE 1-C

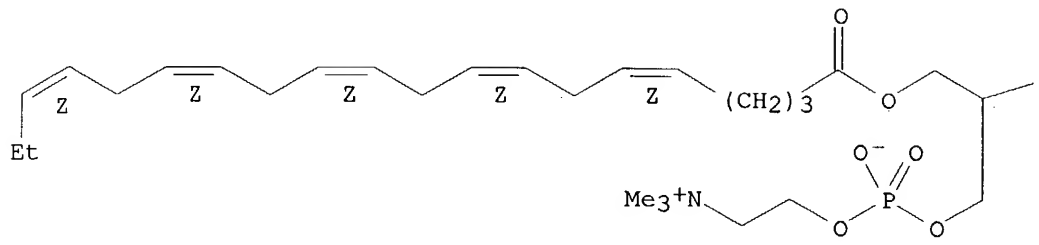


12 REFERENCES IN FILE CA (1907 TO DATE)
12 REFERENCES IN FILE CAPLUS (1907 TO DATE)

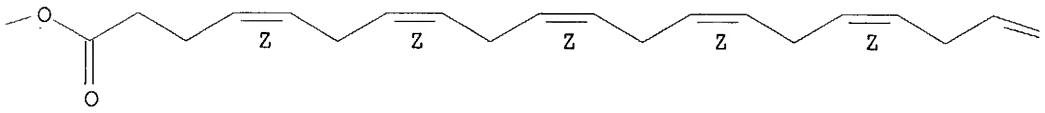
L14 ANSWER 4 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **87879-23-0** REGISTRY
CN 3,5,8-Trioxa-4-phosphatriaconta-12,15,18,21,24,27-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-9-oxo-7-[[[(5Z,8Z,11Z,14Z,17Z)-1-oxo-5,8,11,14,17-eicosapentaenyl]oxy]methyl]-, inner salt, 4-oxide, (12Z,15Z,18Z,21Z,24Z,27Z)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 3,5,8-Trioxa-4-phosphatriaconta-12,15,18,21,24,27-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-9-oxo-7-[[(1-oxo-5,8,11,14,17-eicosapentaenyl)oxy]methyl]-, inner salt, 4-oxide, (all-Z)-
FS STEREOSEARCH
MF C50 H78 N O8 P
LC STN Files: CA, CAPLUS, USPATFULL
DT.CA CAplus document type: Journal; Patent
RL.P Roles from patents: BIOL (Biological study); USES (Uses)
RL.NP Roles from non-patents: BIOL (Biological study); OCCU (Occurrence)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



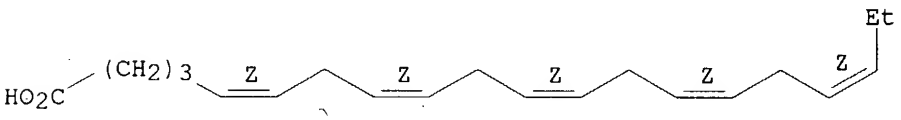
PAGE 1-C

4 REFERENCES IN FILE CA (1907 TO DATE)
4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L14 ANSWER 5 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **10417-94-4** REGISTRY
CN 5,8,11,14,17-Eicosapentaenoic acid, (5Z,8Z,11Z,14Z,17Z)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 5,8,11,14,17-Eicosapentaenoic acid (6CI)
CN 5,8,11,14,17-Eicosapentaenoic acid, (all-Z)- (8CI)
OTHER NAMES:
CN (5Z,8Z,11Z,14Z,17Z)-Eicosapentaenoic acid
CN (all-cis)-5,8,11,14,17-Eicosapentaenoic acid
CN (all-Z)-Δ5,8,11,14,17-Eicosapentaenoic acid
CN (all-Z)-5,8,11,14,17-Eicosapentaenoic acid
CN Eicosapentaenoic acid
CN EPA
CN Icosapent
CN Icosapentaenoic acid
CN Timnodonic acid
FS STEREOSEARCH

DR 25377-48-4
MF C20 H30 O2
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU, DRUGU, EMBASE, IFICDB, IFIUDB, IMSDRUGNEWS, IMSRESEARCH, MRCK*, PHAR, PROMT, TOXCENTER, USAN, USPAT2, USPATFULL, VETU
(*File contains numerically searchable property data)
Other Sources: WHO
DT.CA CAplus document type: Conference; Dissertation; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

7667 REFERENCES IN FILE CA (1907 TO DATE)
176 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
7679 REFERENCES IN FILE CAPLUS (1907 TO DATE)
6 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L14 ANSWER 6 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **7439-93-2** REGISTRY
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Lithium atom
CN Lithium element
MF Li
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Li

74534 REFERENCES IN FILE CA (1907 TO DATE)
5865 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
74572 REFERENCES IN FILE CAPLUS (1907 TO DATE)
5 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L14 ANSWER 7 OF 7 REGISTRY COPYRIGHT 2004 ACS on STN
RN **6217-54-5** REGISTRY
CN 4,7,10,13,16,19-Docosahexaenoic acid, (4Z,7Z,10Z,13Z,16Z,19Z)- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 4,7,10,13,16,19-Docosahexaenoic acid, (all-Z)- (8CI)
CN Docosahexaenoic acid (6CI)
OTHER NAMES:
CN (4Z,7Z,10Z,13Z,16Z,19Z)-4,7,10,13,16,19-Docosahexaenoic acid
CN (4Z,7Z,10Z,13Z,16Z,19Z)-Docosahexaenoic acid
CN (all-Z)-4,7,10,13,16,19-Docosahexaenoic acid
CN Δ4,7,10,13,16,19-Docosahexaenoic acid
CN 4-cis,7-cis,10-cis,13-cis,16-cis,19-cis-Docosahexaenoic acid
CN all-cis-4,7,10,13,16,19-Docosahexaenoic acid
CN all-Z-Docosahexaenoic acid
CN Cervonic acid
CN DHA
CN Doconexent
FS STEREOSEARCH
DR 25377-50-8
MF C22 H32 O2
CI COM
LC STN Files: ADISINSIGHT, ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAOLD, CAPLUS, CASREACT, CEN,

CHEMCATS, CIN, CSCHEM, EMBASE, IMSRESEARCH, MRCK*, PROMT, SYNTHLINE, TOXCENTER, USAN, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: WHO

DT.CA CAplus document type: Conference; Dissertation; Journal; Patent

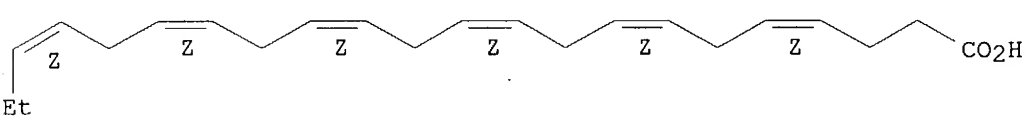
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

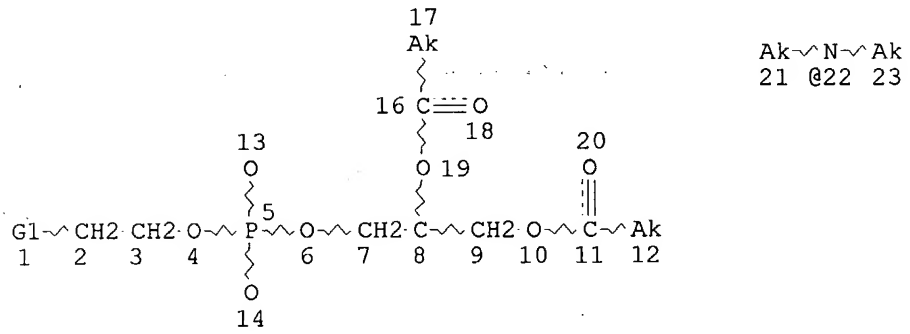
Double bond geometry as shown.

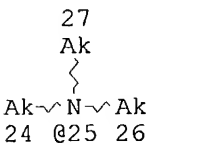


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

8181 REFERENCES IN FILE CA (1907 TO DATE)
145 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
8202 REFERENCES IN FILE CAPLUS (1907 TO DATE)
9 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

```
=> d que l21
L3            11 SEA FILE=REGISTRY ABB=ON  PLU=ON  C8H20NO6P/MF
L4            11 SEA FILE=REGISTRY ABB=ON  PLU=ON  L3 AND NC=1
L5            10 SEA FILE=REGISTRY ABB=ON  PLU=ON  L4 NOT IDS/CI
L11              STR
```






```
VAR G1=22/25
NODE ATTRIBUTES:
CONNECT IS E1  RC AT  12
CONNECT IS E1  RC AT  13
CONNECT IS E1  RC AT  14
CONNECT IS E1  RC AT  17
CONNECT IS E1  RC AT  21
CONNECT IS E3  RC AT  22
CONNECT IS E1  RC AT  23
CONNECT IS E1  RC AT  24
CONNECT IS E4  RC AT  25
CONNECT IS E1  RC AT  26
CONNECT IS E1  RC AT  27
DEFAULT MLEVEL IS ATOM
GGCAT   IS LIN  AT  12
GGCAT   IS LIN  AT  17
DEFAULT ECLEVEL IS LIMITED
ECOUNT  IS M19-X21 C  AT  12
ECOUNT  IS M19-X21 C  AT  17

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  26

STEREO ATTRIBUTES: NONE
L12          319 SEA FILE=REGISTRY SSS FUL L11
L13          152 SEA FILE=REGISTRY ABB=ON  PLU=ON  L12/COM
L15         2068 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "MENTAL DISORDER (L) BIPOLAR
                 DISORDER"+OLD/CT
L16          159 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L5 OR L13)(L)(BAC OR DMA OR
                 PAC OR PKT OR THU)/RL
```

```
L17           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L16
L18           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L17 AND STOLL?/AU
L19       32657 SEA FILE=HCAPLUS ABB=ON  PLU=ON  BIPOL?
L20           4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L5 OR L13) AND L19
L21           4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L18 OR L20
```

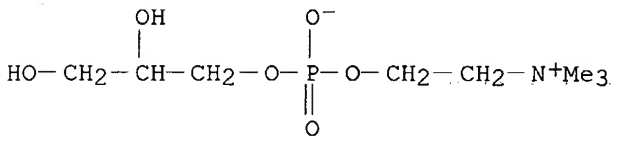
=> d l21 ibib abs hitind hitstr 1-4

L21 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:327204 HCAPLUS
DOCUMENT NUMBER: 139:255194
TITLE: Chronic lithium and sodium valproate both decrease the concentration of myoinositol and increase the concentration of inositol monophosphates in rat brain
AUTHOR(S): O'Donnell, T.; Rotzinger, S.; Nakashima, T. T.; Hanstock, C. C.; Ulrich, M.; Silverstone, P. H.
CORPORATE SOURCE: Department of Psychiatry, University of Alberta Hospital, Edmonton, AB, T6G 2B7, Can.
SOURCE: European Neuropsychopharmacology (2003), 13(3), 199-207
CODEN: EURNE8; ISSN: 0924-977X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB One of the mechanisms underlying lithium's efficacy as a mood stabilizer in **bipolar** disorder has been proposed to be via its effects on the phosphoinositol cycle (PI cycle), where it is an inhibitor of the enzyme converting inositol monophosphates to myoinositol. In contrast, sodium valproate, another commonly used mood stabilizer, appears to have no direct effects on this enzyme and was thus believed to have a different mechanism of action. In the present study, high-resolution NMR spectroscopy was used to study the chronic effects of both lithium and sodium valproate on the concns. of myoinositol and inositol monophosphates in rat brain. As predicted, lithium-treated rats exhibited a significant increase in the concentration of inositol monophosphates and a significant decrease in myoinositol concentration compared to saline-treated controls. However, unexpectedly, sodium valproate administration produced exactly the same results as lithium administration. These novel findings suggest that both lithium and sodium valproate may share a common mechanism of action in the treatment of **bipolar** disorder via actions on the PI cycle.

CC 1-11 (Pharmacology)
ST lithium sodium valproate myoinositol inositol monophosphate brain **bipolar** disorder
IT 56-40-6, Glycine, biological studies 56-73-5, Glucose-6-phosphate 57-00-1, Creatine 67-07-2, Phosphocreatine 87-89-8, Myoinositol 107-73-3, Phosphocholine **563-24-6**, Glycerophosphocholine 997-55-7 1190-00-7, Glycerophosphoethanolamine
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(chronic lithium and sodium valproate both decrease concentration of myoinositol and increase concentration of inositol monophosphates in rat brain)
IT **563-24-6**, Glycerophosphocholine
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(chronic lithium and sodium valproate both decrease concentration of myoinositol and increase concentration of inositol monophosphates in rat brain)

RN 563-24-6 HCAPLUS
CN Ethanaminium, 2-[[(2,3-dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, inner salt (9CI) (CA INDEX NAME)



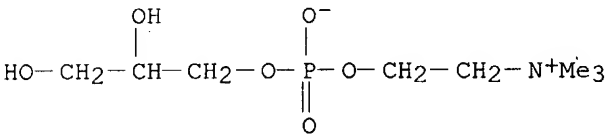
REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:719301 HCAPLUS
DOCUMENT NUMBER: 134:51298
TITLE: Chronic lithium and sodium valproate both decrease the concentration of myo-inositol and increase the concentration of inositol monophosphates in rat brain
AUTHOR(S): O'Donnell, T.; Rotzinger, S.; Nakashima, T. T.; Hanstock, C. C.; Ulrich, M.; Silverstone, P. H.
CORPORATE SOURCE: Department of Psychiatry, University of Alberta, Edmonton, AB, T6G 2B7, Can.
SOURCE: Brain Research (2000), 880(1,2), 84-91
CODEN: BRREAP; ISSN: 0006-8993
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB One of the mechanisms underlying lithium's efficacy as a mood stabilizer in **bipolar** disorder has been proposed to be via its effects on the phosphoinositol cycle (PI-cycle), where it is an inhibitor of the enzyme converting inositol monophosphates to myo-inositol. In contrast, sodium valproate, another commonly used mood stabilizer, appears to have no direct effects on this enzyme and was thus believed to have a different mechanism of action. In the present study, high resolution NMR spectroscopy was used to study the chronic effects of both lithium and sodium valproate on the concns. of myo-inositol and inositol monophosphates in rat brain. As predicted, lithium-treated rats exhibited a significant increase in the concentration of inositol monophosphates and a significant decrease in myo-inositol concentration compared to saline-treated controls. However, unexpectedly, sodium valproate administration produced exactly the same results as lithium administration. These novel findings suggest that both lithium and sodium valproate may share a common mechanism of action in the treatment of **bipolar** disorder via actions on the PI-cycle.
CC 1-11 (Pharmacology)
ST lithium valproate mental disease mechanism; brain **bipolar** disorder lithium valproate; myo inositol lithium valproate **bipolar** disorder
IT Mental disorder
(manic **bipolar** disorder; chronic lithium and sodium valproate decrease concentration of myo-inositol and increase concentration of inositol monophosphates)
IT 56-40-6, Glycine, biological studies 56-73-5, Glucose-6-phosphate 57-00-1, Creatine 67-07-2, Phosphocreatine 87-89-8, myo-Inositol

107-73-3, Phosphocholine **563-24-6**, Glycerophosphocholine
997-55-7 1190-00-7, Glycerophosphoethanolamine 105182-27-2, Inositol monophosphate
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(chronic lithium and sodium valproate decrease concentration of myo-inositol and increase concentration of inositol monophosphates)

IT **563-24-6**, Glycerophosphocholine
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(chronic lithium and sodium valproate decrease concentration of myo-inositol and increase concentration of inositol monophosphates)

RN 563-24-6 HCAPLUS
CN Ethanaminium, 2-[[(2,3-dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, inner salt (9CI) (CA INDEX NAME)



REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:98343 HCAPLUS
DOCUMENT NUMBER: 132:132349
TITLE: Methods using uridine or a uridine source for increasing cytidine levels in vivo and treating cytidine-dependent human neurological diseases
INVENTOR(S): Watkins, Carol; Wurtman, Richard J.
PATENT ASSIGNEE(S): Massachusetts Institute of Technology, USA
SOURCE: PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000006174	A1	20000210	WO 1999-US17235	19990730
W: CA, JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2339008	AA	20000210	CA 1999-2339008	19990730
EP 1140104	A1	20011010	EP 1999-937631	19990730
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
US 2002028787	A1	20020307	US 1999-363748	19990730
JP 2003517437	T2	20030527	JP 2000-562028	19990730

PRIORITY APPLN. INFO.: US 1998-95002P P 19980731
WO 1999-US17235 W 19990730

AB Methods of treating certain neurol. diseases using exogenous uridine or a

uridine source alone as a precursor of endogenous cytidine, particularly in the human brain, are disclosed. Methods are also disclosed in which exogenous uridine or a uridine source is combined either with drugs increasing uridine availability or with compds. that serve as a source of choline in phospholipid synthesis.

IC ICM A61K031-55
ICS A61K031-70; A61K031-235; A61K031-515; A61K031-685

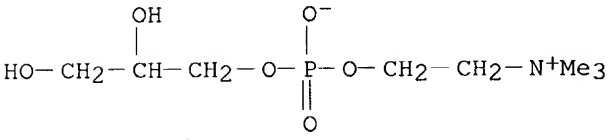
CC 1-11 (Pharmacology)

IT Mental disorder
(manic **bipolar** disorder; uridine or uridine source for increasing cytidine levels in vivo and treating cytidine-dependent human neurol. diseases)

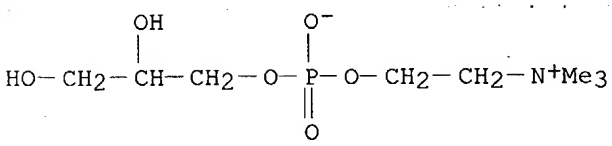
IT 54-03-5, Hexobendine 62-49-7, Choline 67-48-1, Choline chloride 87-67-2, Choline bitartrate, biological studies **563-24-6**, Glycerophosphatidylcholine **563-24-6D**, Glycerophosphocholine, acyl derivs. 987-78-0, CDP-choline 5909-45-5D, derivs. 5909-45-5D, derivs. 5983-09-5, 2',3'-Dideoxyuridine 23464-76-8, Choline stearate 26287-69-4, L-Uridine 35898-87-4, Dilazep 153547-98-9
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(uridine or uridine source for increasing cytidine levels in vivo and treating cytidine-dependent human neurol. diseases)

IT **563-24-6**, Glycerophosphatidylcholine **563-24-6D**, Glycerophosphocholine, acyl derivs.
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(uridine or uridine source for increasing cytidine levels in vivo and treating cytidine-dependent human neurol. diseases)

RN 563-24-6 HCAPLUS
CN Ethanaminium, 2-[[(2,3-dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, inner salt (9CI) (CA INDEX NAME)



RN 563-24-6 HCAPLUS
CN Ethanaminium, 2-[[(2,3-dihydroxypropoxy)hydroxyphosphinyl]oxy]-N,N,N-trimethyl-, inner salt (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:717821 HCAPLUS
DOCUMENT NUMBER: 128:7311
TITLE: Fatty acids and phosphatidylcholines in the treatment of **bipolar** disorder
INVENTOR(S): **Stoll, Andrew L.**; Severus, Wolfram E.
PATENT ASSIGNEE(S): Brigham and Women's Hospital, USA; Stoll, Andrew L.; Severus, Wolfram E.
SOURCE: PCT Int. Appl., 13 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9739759	A2	19971030	WO 1997-US6712	19970423
WO 9739759	A3	19980115		
W: AU, CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
AU 9727384	A1	19971112	AU 1997-27384	19970423
US 6344482	B1	20020205	US 1999-269361	19990322
US 2002091103	A1	20020711	US 2002-68035	20020205
US 2003012827	A1	20030116	US 2002-83913	20020227

PRIORITY APPLN. INFO.: US 1996-16140P P 19960424
WO 1997-US6712 W 19970423
US 1999-269361 A1 19990322

AB The present invention is directed to a method of treating patients with **bipolar** disorder by administering ω-3 fatty acids. These may be administered in a substantially purified form, as part of a pharmaceutical composition, or as part of a larger mol., e.g. a triacylglycerol, which releases free fatty acid after ingestion by a patient. The present invention is also directed to triacylglycerols which are esterified at the γ-carbon of glycerol with phosphocholine and at either the α- or β-carbon of glycerol with an ω-3 fatty acid. These ω-3 phosphatidylcholines are also used in the treatment of patients with **bipolar** disorder.

IC ICM A61K033-14
ICS A61K031-66; A61K031-20
CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1
ST polyunsatd fatty acid phosphatidylcholine **bipolar** disorder
IT **Mental disorder**
(**manic bipolar disorder**; ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar disorder**)
IT Drug delivery systems
(oral; ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar** disorder)
IT Fatty acids, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyunsatd., n-3; ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar** disorder)
IT Phosphatidylcholines, biological studies

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar** disorder)

IT 7439-93-2D, Lithium, compds., biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(as addnl. agent; ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar** disorder)

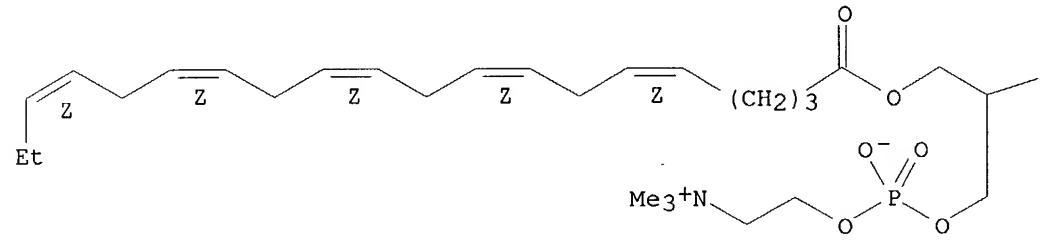
IT 6217-54-5, Docosahexaenoic acid 10417-94-4, Eicosapentaenoic acid
87879-23-0 87879-27-4 98819-78-4
198779-10-1
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar** disorder)

IT **87879-23-0 87879-27-4 98819-78-4**
198779-10-1
RL: **BAC (Biological activity or effector, except adverse)**; BSU (Biological study, unclassified); **THU (Therapeutic use)**; BIOL (Biological study); USES (Uses)
(ω-3 fatty acids and phosphatidylcholines for treatment of **bipolar** disorder)

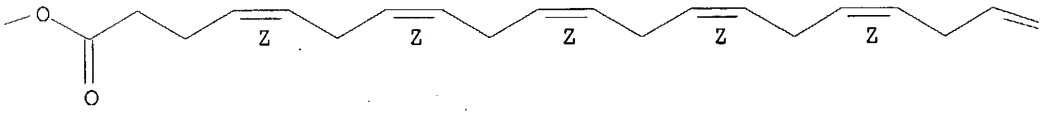
RN 87879-23-0 HCAPLUS
CN 3,5,8-Trioxa-4-phosphatriaconta-12,15,18,21,24,27-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-9-oxo-7-[[[(5Z,8Z,11Z,14Z,17Z)-1-oxo-5,8,11,14,17-eicosapentaenyl]oxy]methyl]-, inner salt, 4-oxide, (12Z,15Z,18Z,21Z,24Z,27Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

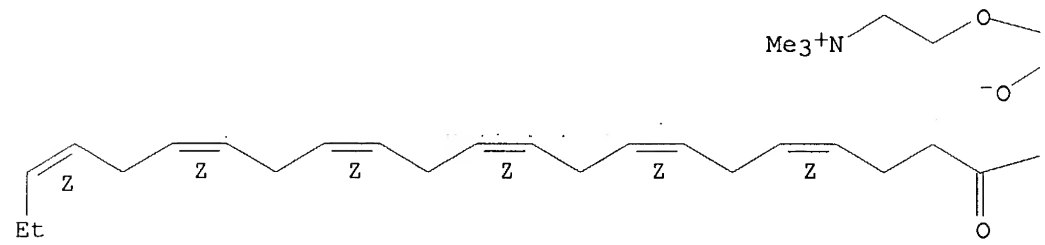


PAGE 1-C

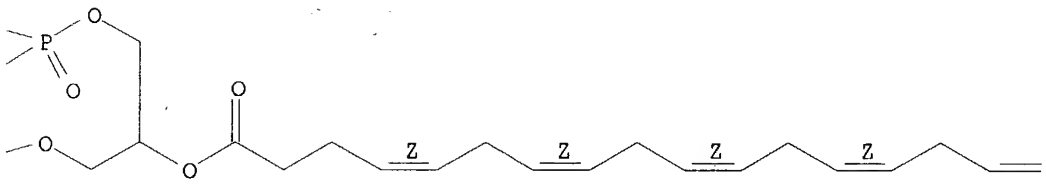
RN 87879-27-4 HCAPLUS
CN 3,5,9-Trioxa-4-phosphahentriaconta-13,16,19,22,25,28-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[[(4Z,7Z,10Z,13Z,16Z,19Z)-1-oxo-4,7,10,13,16,19-docosahexaenyl]oxy]-, inner salt, 4-oxide, (13Z,16Z,19Z,22Z,25Z,28Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

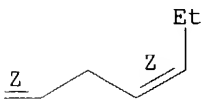
PAGE 1-A



PAGE 1-B



PAGE 1-C

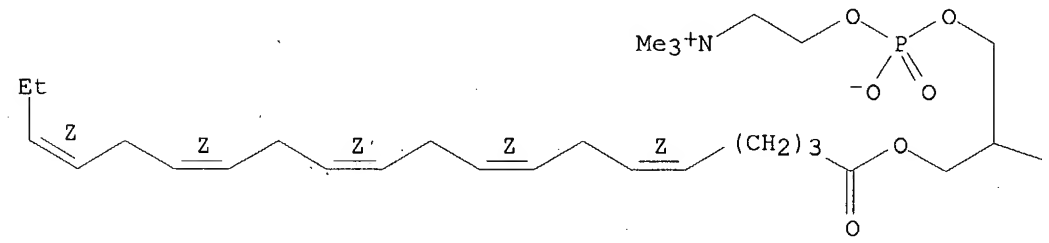


RN 98819-78-4 HCAPLUS
CN 3,5,9-Trioxa-4-phosphanonacosa-14,17,20,23,26-pentaen-1-aminium,

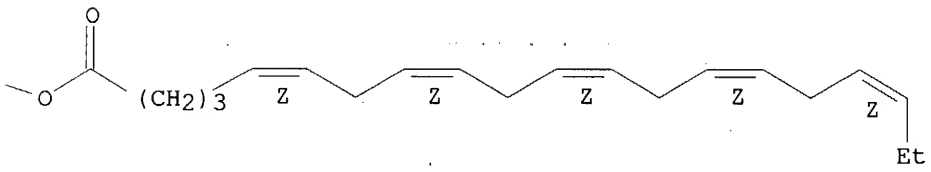
4-hydroxy-N,N,N-trimethyl-10-oxo-7-[[(5Z,8Z,11Z,14Z,17Z)-1-oxo-5,8,11,14,17-eicosapentaenyl]oxy]-, inner salt, 4-oxide, (14Z,17Z,20Z,23Z,26Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



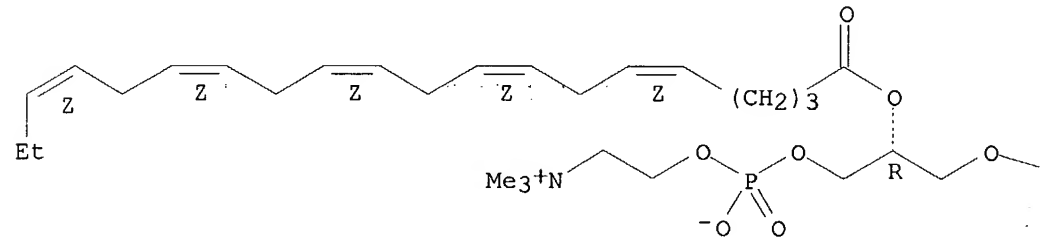
PAGE 1-B



RN 198779-10-1 HCAPLUS
CN 3,5,9-Trioxa-4-phosphahentriaconta-13,16,19,22,25,28-hexaen-1-aminium, 4-hydroxy-N,N,N-trimethyl-10-oxo-7-[(1-oxo-5,8,11,14,17-eicosapentaenyl)oxy]-, inner salt, 4-oxide, [R-(all-Z)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.

PAGE 1-A



PAGE 1-B